

**The Ohio Public Utilities Commission's Response to U.S. DOE's
Questionnaire on
Energy Policy Act of 2005, Section 1234
Economic Dispatch Study
Questions for Stakeholders**

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In response to the department's request for comments on how economic dispatch is now practiced, and how it might be changed in the future, the Public Utilities Commission of Ohio would like to offer the following comments and responses.

Questions

- 1) What are the procedures now used in your region for economic dispatch? Who is performing the dispatch (a utility, an ISO or RTO, or other) and over how large an area (geographic scope, MW load, MW generation resources, number of retail customers within the dispatch area)?**

It is clear from the language in the Energy Policy Act that the focus of the study should be directed towards non-utility generation resources. According to EIA information non-utility generation is growing faster than any other sector. For many reasons utility companies have not added generation resources as fast as non-utility companies. Ohio has experienced this growth through deregulation and the development of two RTOs (PJM and MISO) across the state. Since 2000 Ohio has sited over 9,000 MWs of non-utility generation in the state, more than 4,000 of which has become operational. Over 90 percent of the generation located in Ohio is utility generation.

The new wholesale market structure requires all utility and non-utility generator owners to offer their generation into the wholesale market through the market operator. Both PJM and MISO use a least cost security constrained dispatch of generation resources offered into the wholesale market. Utility companies operating in Ohio are currently restricted to bid offers based upon operating cost and not market price. Although the new wholesale markets dispatch the lowest cost units first, it should not be forgotten that utility companies under state regulation have always dispatched least cost generation before dispatching higher cost generation when system conditions allowed. The RTO system operators are following the same dispatch methodology used in the past only on a larger scale and with nondiscriminatory pricing for both utility and non-utility resources.

The market operators are also looking at non-utility distributed and behind the meter generation resources along with load management resources to include into their economic dispatch models.

2) Is the Act's definition of economic dispatch (see above) appropriate? Over what geographic scale or area should economic dispatch be practiced? Besides cost and reliability, are there any other factors or considerations that should be considered in economic dispatch, and why?

There is no current official government definition of "economic dispatch". The definition given is very broad. It refers to "lowest cost" and "reliable service". Both of these terms can be interpreted in many ways. It is assumed that "lowest cost" means a comparison of the costs of producing the next unit of energy based upon the available resources and system characteristics. Although this definition is technically correct, it falls far short of recognizing many other business decisions that company's make in pricing their products. For example, most companies may be willing to offer some product at below cost in order to make more profit on other products. Profit margins are normally viewed on a company level as well as individual the unit level. However, since the utility and non-utility companies no longer control the dispatch of their generating resources, they are in less control of and have less incentive to provide low cost energy. Companies need some confidence that the dispatch method used by the system operator will provide them an opportunity to make a reasonable profit. Because generator owners no longer dispatch their generation resources they are not in control of system reliability. Traditionally, reliability was the responsibility of the utility companies. Historically, as now, generation and load have been kept in balance by dispatch of generation resources in coordination with the transmission and distribution operation. Economic dispatch has not up set this balance. However, in Ohio, the responsibility for reliability has transferred from utility companies to the system operator, PJM or MISO.

3) How do economic dispatch procedures differ for different classes of generation, including utility-owned versus non-utility generation? Do actual operational practices differ from the formal procedures required under tariff or federal or state rules, or from the economic dispatch definition above? If there is a difference, please indicate what the difference is, how often this occurs, and its impacts upon non-utility generation and upon retail electricity users. If you have specific analyses or studies that document your position, please provide them.

Ohio, like many states, is proud that through its regulations and working with utility companies has built a large stable supply of low cost base load generation. Over one-half of the generation in Ohio comes from low cost coal fired generation. However, it is true that most if not all of the low cost base load generation was built by utility companies under regulated rates and passed on to retail customers through a monopoly rate structure.

Ohio is one of the states to deregulate its generation. Under deregulation wholesale customers can purchase power from non-utility and non local utility energy suppliers. Under the current PJM and MISO markets all generators in Ohio have the opportunity to sell their generation into the wholesale market at competitive prices. However, it is worth saying that market dispatch focuses on marginal units which are typically peaking units whose operating characteristics are different from base load coal fired units. The real time five minute economic dispatch used by PJM and MISO to meet reliability requirements does not favor base load generation but focuses attention on unit with quick response times. These quick response units set the LMP most of the time. It is important that all generation be available to communicate with the system operator when called upon and able to be dispatched.

Of the new generation built in Ohio since 2000, all have been quick response units fired by natural gas. Most of these quick response units were built by non-utility companies. We know that in the past under utility company control, these type of units were only use when necessary to meet system demand or reserve requirements that could not be met by lower cost base load generation. However, under the new market concept, these units are dispatched based upon costs rather than system demand. Because energy is priced every five minutes rather than on a longer average price, units that were once relegated to little use are now being used more often.

4) What changes in economic dispatch procedures would lead to more non-utility generator dispatch? If you think that changes are needed to current economic dispatch procedures in your area to better enable economic dispatch participation by non-utility generators, please explain the changes you recommend.

Economic dispatch is not new. Utilities have dispatched based upon economic costs of operating units. Adding non-utility generation required that utility and non-utility companies work together. Standard pricing and dispatch procedures under the PJM and MISO system operators have resulted in nondiscriminatory treatment of both utility and non-utility generation.

5) If economic dispatch causes greater dispatch and use of non-utility generation, what effects might this have – on the grid, on the mix of energy and capacity available to retail customers, to energy prices and costs, to environmental emissions, or other impacts? How would this affect retail customers in particular states or nationwide? If you have specific analyses to support your position, please provide them to us.

Because Ohio generation is dispatched by PJM and MISO the question of whether economic dispatch causes greater dispatch and use of non-utility generation is not an issue. Under PJM's and MISO's least cost security constrained dispatch procedures, utility and non-utility generation is treated the same. Transmission reliability is PJM's

and MISO's first priority and the dispatch of all generation under their control is used to maintain system reliability. Increased use of short term energy market pricing for economic dispatch has resulted in greater uncertainty of power flow pattern on the transmission system. The practice by PJM and MISO to dispatch quick response peaking units, which are in large part owned by non-utility companies and use natural gas instead of using lower cost coal fired units, to address this uncertain power flow has caused energy prices to rise and transmission planning to become problematic. The greater use of peaking unit is causing the depletion of the natural gas resources faster than what would occur if coal fired units were dispatched. PJM's short term capacity market has been deemed a failure and PJM proposes to replace it with a longer term capacity market that recognizes the value of longer term capacity commitment and the possibility of transmission upgrades to support system reliability. MISO is working on a proposal that would rely on bilateral contracts to meet system capacity requirements. Both PJM's and MISO's proposals do not discriminate between utility or non-utility generation additions. Under PJM's proposal the price for new generation resources would be set by PJM. Under MISO's proposal the bilateral contract would determine the cost of new generation resources. Ultimately the retail customers would pick up most if not all of these costs. However, increased use of short term market pricing for economic dispatch has resulted in greater uncertainty of flow pattern on the transmission system.

6) Could there be any implications for grid reliability – positive or negative – from greater use of economic dispatch? If so, how should economic dispatch be modified or enhanced to protect reliability?

The use of economic dispatch is only one of several factors that should be considered in the dispatch of electric generation units. Other factors are the use of scarce energy resources, environmental considerations/restrictions, transmission constraints and system reliability. Currently non-utility generation tends to rely more on the use of high cost natural gas. The result is prices in PJM's and MISO's wholesale energy market are driven by natural gas prices. Non-utilities by their very nature do not have long term commitments to native load customers. This lack of long term commitment causes grid reliability problems. A stable generation and load commitment would provide greater grid reliability. If the grid is allowed to be used as a super highway by anyone who wants to get on and off at their will, the grid will have to be over designed to accommodate this unregulated and volatile use of the system. It should be clear to every one that no grid design can accommodate every conceivable generation to load transaction. Therefore some limits or standards have to be in place for using the grid in order to maintain grid reliability. Utility companies tend to serve stable well define loads. This use of the transmission system provides a greater degree of grid reliability. Non-utilities that have long term contracts also provide greater grid reliability. Longer term resource commitments provide greater reliability to the dispatch of generation resources and greater economic value. Additionally, greater reliance upon non-utility generation as a result of a dispatch based upon short term economic signals may result in greater reliance upon new non-utility resources. Recent data indicates that reliance upon new non-utility resources is very risky. Forecast of new generation additions by non-utility resources can

change dramatically from year to year. Reliance upon such an uncertain resource to meet future load demand will impact grid reliability.